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A NEW GENUS AND SPECIES OF
EUCERINE BEE FROM NORTH AMERICA
(HYMENOPTERA: ANTHOPHORIDAE)

By

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ABSTRACT: A new genus and species of eucerine bee, *Simanthedon linsleyi*, from the southwestern United States and northern Mexico is described and figured. In southeastern Arizona, this aestival bee is primarily a matinal forager on the flowers of *Menodora scabra* Gray (Oleaceae).

Shortly after daybreak on a morning in late August 1972, I collected a few eucerine bees that appeared to be *Martinapis luteicornis* (Cockerell). They were taken from a plant with yellow, star-shaped flowers found growing near the town of Bisbee in southeastern Arizona. Subsequent examination of the bees disclosed that they were not *M. luteicornis*, but were instead an undescribed species that is sufficiently distinct from all other New World eucerines to be placed into a new genus. Subsequent examination of the plant showed that it was *Menodora scabra* Gray (Oleaceae). During the summers of 1973 and 1974, I returned to southeastern Arizona in order to study the pollination of *M. scabra* and collected more of the unusual eucerine bees on it. This new genus and species of bee is described in the present paper.

The generic description includes the characters that have been used to define the numerous New World genera of Eucerini by Moure and Michener (1955) and LaBerge (1957), and numerous additional characters that I believe are also of generic value. Characteristics common to both sexes are included in the generic and specific descriptions of the male.

The abbreviations used in the list of specimens examined and the museums

they represent are: AMNH, American Museum of Natural History; ASU, Arizona State University; CAS, California Academy of Sciences; UCB, California Insect Survey Collection, University of California at Berkeley; UCR, P. H. Timberlake Collection, University of California at Riverside.

***Simanthedon* Zavortink, new genus**

MALE. Head: Face narrow, minimum distance between eyes 0.70–0.75 length of eye. Inner margins of eyes parallel to slightly convergent ventrally. Vertex weakly elevated behind ocelli, median ocellus separated from apex of head by 0.35–0.45 of its width in frontal view. Ocelli slightly enlarged, distance from median ocellus to lateral ocellus 0.29–0.44 diameter of median ocellus. Distance between lateral ocelli 1.6–2.1 times distance from lateral ocellus to eye. Lower paraocular carina absent. Minimum oculo-clypeal distance 0.3–0.7 minimum width of first flagellar segment. Clypeus approximate to eye for distance subequal to basal width of mandible; strongly protuberant, in lateral view extended beyond anterior margin of eye by 0.70–0.85 width of eye; moderately produced, in facial view extended beyond lower end of eye by 0.7–1.1 width of median ocellus; lateral part not reflexed mesad of lateroclypeal carina; upper part narrow, width at level of anterior tentorial pit 0.85–0.95 width of labrum; ‘pug-nosed’, with surface concave in upper 0.65–0.75 medially, strongly reflexed and flat in lower 0.25–0.35. Malar area short, 0.10–0.13 as long as wide. Anterior mandibular articulation slightly farther from eye than posterior one. **Antenna:** Long, extended to pterostigma in repose. Scape thick, short, slightly thicker than width of median ocellus, as long as to longer than interantennal distance. Flagellum slender, greatest diameter less than width of median ocellus, slightly flattened, tapered distally; segment 1 long, 1.20–1.35 length of scape, 0.75–0.85 length of segment 2; segments 3–10 progressively shorter; segment 11 long, as long as segments 5, 6, or 7, curved, tapered to a blunt point. **Mouth-parts:** Labrum 0.60–0.65 as long as wide; distal margin convex with shallow median emargination. Mandible short, 0.50–0.60 length of eye; with weak subapical tooth on inner margin. Proboscis moderately long, distal part of galea 1.0–1.2 length of eye. Maxillary palpus 5-segmented; 0.32–0.37 length of distal part of galea; lengths of segments in ratio of 1.00:0.94:0.82:0.53:0.41. Segment 1 of labial palpus 1.8–2.3 length of segment 2.

Mesosoma: Scutellum 0.22–0.28 length of scutum; strongly convex; with moderately long, median, longitudinal, impunctate ridge or line anteriorly. Metanotum strongly convex. Propodeum with basal part steeply declivous; posterior surface without vertical carina laterally. Without spatuloplumose hairs. Tegula oval. **Wings:** Forewing with prestigma short. Pterostigma shorter than prestigma, with inner margin barely extended distad of base of vein r. Marginal cell subequal in length to distance from its apex to apex of wing or slightly longer; 3.7–4.3 times as long as wide; basal part subequal in length to

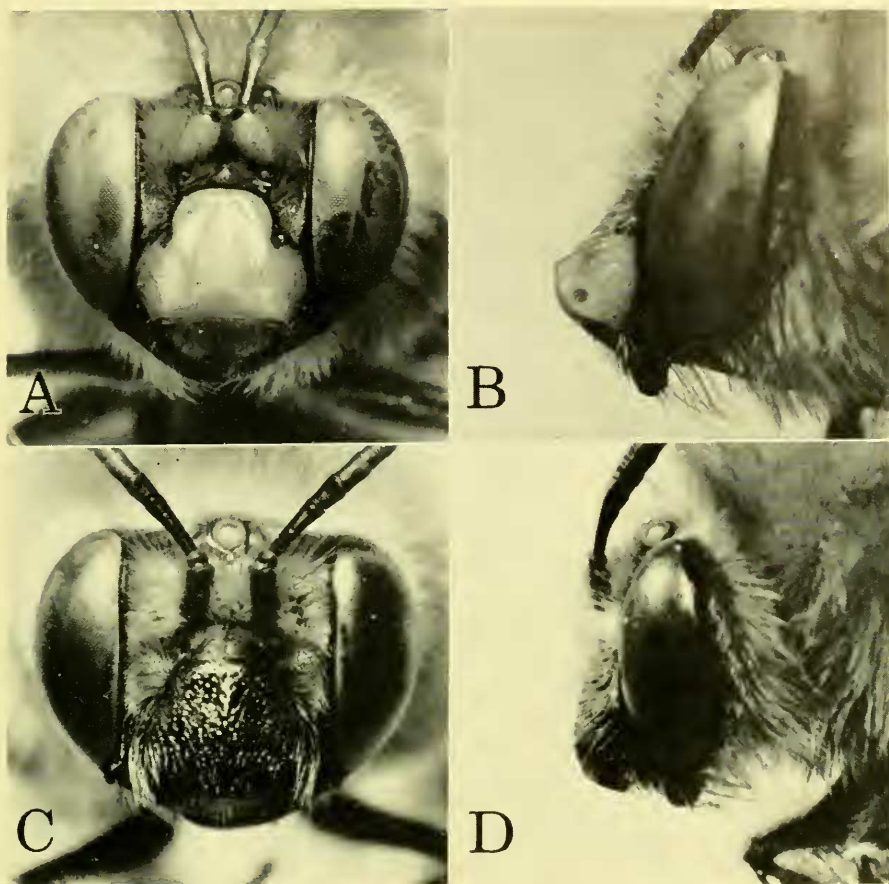


FIGURE 1. *Simanthedon linsleyi*, new species, head. A, facial view of male; B, lateral view of male; C, facial view of female; D, lateral view of female.

free part. Three submarginal cells; first 1.4–1.7 length of second, 1.0–1.2 length of third; second strongly rhomboid. Cell 1M petiolate, 0.84–0.94 length of marginal cell. Vein C not strongly expanded at base. Vein 2nd r-m sharply angled, usually appendiculate. Vein 1st m-cu ending 0.70–0.82 distance from base of second submarginal cell. Vein 2nd m-cu joined to Cu_1 in nearly even curve. Hindwing with 13–18 hamuli. Vein cu-v 0.53–0.67 length of 2nd abscissa of vein M + Cu. Jugal lobe 0.87–0.95 length of cell Cu. *Legs*: Femora slender; femur I 1.0–1.1 length of femur II, flattened dorsoventrally, broadest near base; femur III unusually slim, 4.3–4.8 times longer than maximum width. Tibiae slender; tibia III long, 1.5–1.7 length of tibia II. Tibia I spur long, longer than spurs of tibiae II and III, 0.6–0.7 length of basitarsus I, with post-

velar portion of malus long, sinuous; spur II moderately long, 0.43–0.49 distance from its base to anterior tibiofemoral articulation, curved at apex; outer spur III short, inner spur III moderately long, subequal in length to spur II, both gently curved toward each other, so their distal portions are subparallel. Tarsi short; tarsus I 1.0–1.1 length of tibia I; tarsus II 1.5–1.6 of tibia II; tarsus III subequal in length to tarsus II and tibia III. Basitarsus I 0.6–0.7 length of tarsus I; basitarsus II 0.9–1.0 length of tibia II, 0.6 length of tarsus II; basitarsus III 0.6–0.7 length of tarsus III, 5.3–5.6 times longer than wide, with outer surface sparsely pubescent, flattened or concave apically. Claws small, symmetrical on all legs. Arolia present.

Metasoma: Anterior face of tergum I subequal in length to dorsal face; concave. Terga VI, VII without gradular teeth. Pygidial plate wider than long, not narrowed basally, truncate, with notched lateral margin; marginal carina progressively strengthened posteriorly basad of notch, weak distad of notch; surface sparsely pubescent. Sternum I without conspicuous eminence. Sterna II–IV not emarginate. Terga II–IV with basal and narrower apical bands of pale pubescence; without spatuloplumose hairs. *Distal sterna and genitalia*: Sternum V weakly trilobed, with mesal edge of lateral lobe bearing clump of posteriorly directed, strong, long, curved, terete, barbed setae. Sternum VI with oblique lateral carina progressively weakened distad, curved laterally proximad; with median longitudinal sulcus bordered by setae; with pair of lateral subquadrate areas delimited by weak carinae on dorsal surface of disk. Sternum VII with lateral plate large, strongly sclerotized, strongly pigmented, with very deep, narrow lateral emargination; clear membranous area long, narrow, not produced; median plate long, without basal tubercle, with distal portion narrow, straplike, reflexed basally, directed laterad, glabrate; without unpaired median projection; basal apodeme broad, curved, pointed. Sternum VIII narrowed distad of apodeme, with rounded, slightly emarginate apex bearing a few short setae; tubercles far basad of apex; dorsal tubercle moderately broad, with rounded apex; ventral tubercle narrow, elevated distad. Gonocoxite with strong, moderately long dorsoapical process; with moderately long ventral process extended over base of penis valve; without ventroapical process; either without or with very few ventroapical setae. Gonostylus with base broad, sparsely pubescent with simple and inconspicuously plumose hairs; distal 0.6 very slender, gently curved inward. Spatha 1.7–1.8 times wider than long; basolateral angle slightly produced; distal margin with pair of deep, oblique emarginations that receive dorsobasal edges of penis valves, and shallow median emargination; without median longitudinal apodeme. Penis valve with dorso-basal edge strongly oblique, set into emargination of spatha basally, barely extended beyond dorsolateral tooth distally; dorsolateral tooth short, not extended to dorsoapical process of gonocoxite; ventromesal margin not ex-

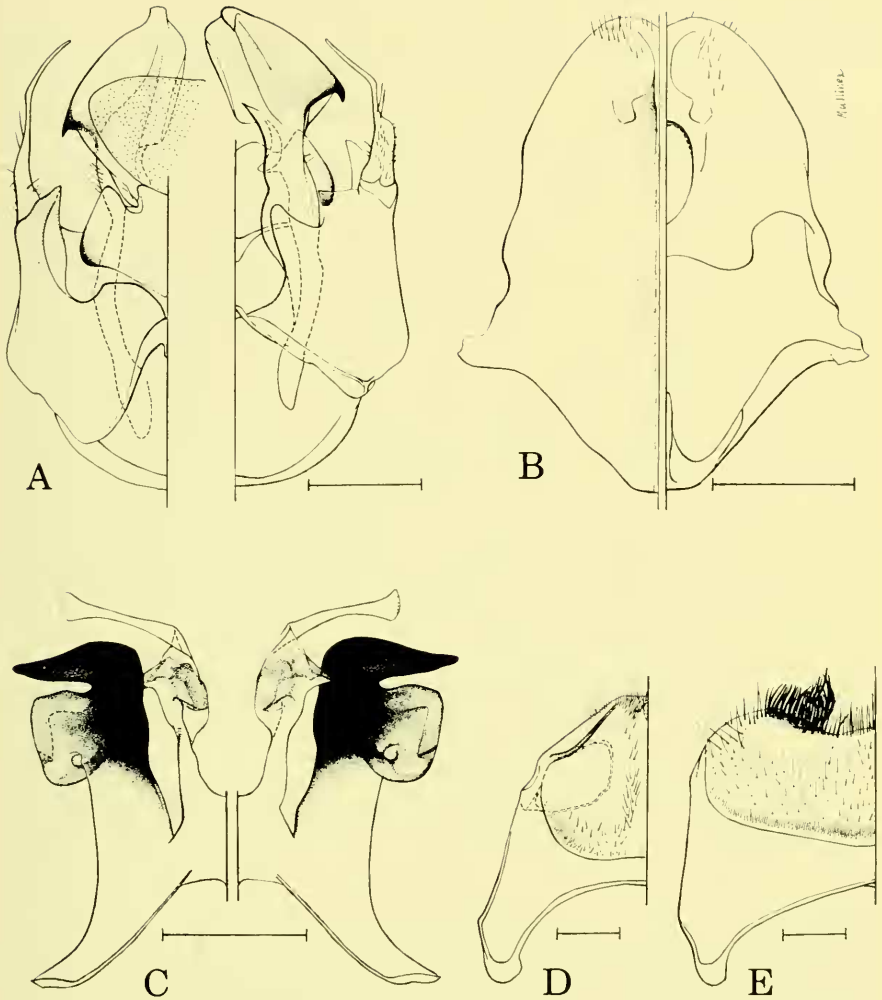


FIGURE 2. *Simanthedon linsleyi*, new species, distal sterna and genitalia of male. A, genitalia, dorsal surface on left; B, sternum VIII, ventral surface on left; C, sternum VII, ventral surface on left; D, sternum VI, left half of ventral surface; E, sternum V, left half of ventral surface. The scale lines represent 1.0 mm.

panded, nearly straight; with broad apodeme extended distad to base of apical process. Penis broad, extended far beyond spatha.

FEMALE. Head: Minimum distance between eyes 0.84–0.91 length of eye. Inner margins of eyes parallel. Median ocellus separated from apex of head by 0.27–0.40 of its width. Distance between lateral ocelli 1.3–1.5 distance from lateral ocellus to eye. Minimum oculoclypeal distance 0.5–0.8 minimum

width of first flagellar segment. Clypeus moderately protuberant, extended beyond anterior margin of eye by 0.55–0.65 width of eye; width at level of anterior tentorial pit 0.95–1.00 width of labrum; surface normal, convex throughout; disk without median longitudinal impunctate ridge or line. *Antenna*: Scape slender, obconic, longer than interantennal distance. Flagellum slender, greatest diameter less than width of median ocellus; segment 1 0.85–0.95 length of scape, 2.1–2.5 length of segment 2; segment 2 obconic, 0.75–0.95 length of segment 3; segments 3–9 much longer than wide; segment 10 1.8–2.2 times longer than wide. *Mouthparts*: Labrum 0.55–0.65 as long as wide; with small tuft of dense pubescence around apical emargination. Mandible 0.54–0.66 length of eye; simple; outer lower carina less salient than inferolateral carina. Stipes without hooked hairs.

Legs: Anterior coxa with short apical spine. Femora and tibiae not unusually slender or long. Basitibial plate hidden or defined posteriorly. Scopal hair dense, simple. Tibia I spur short, shorter than spurs of tibiae II and III, 0.45–0.55 length of basitarsus I; spur II long, 0.56–0.66 distance from its base to anterior tibiofemoral articulation, curved at apex; inner and outer spurs III subequal in length, longer than spur II. Tarsi not unusually short. Basitarsus III with inner surface densely hairy. Claws small, symmetrical on all legs.

Metasoma: Gradulus of tergum VI without lateral parts. Pygidial plate more or less V- or Y- shaped, narrow and pointed apically, with distal lateral margin concave; length 1.2 times basal width. Gradulus of sternum II moderately strongly biconvex. Sternum VI emarginate at apex.

TYPE SPECIES. *Simanthedon linsleyi* Zavortink, new species.

ETYMOLOGY. *Simanthedon* (feminine) from the Greek *simos*, pugnosed, and *anthedon*, bee.

***Simanthedon linsleyi* Zavortink, new species.**

(Figures 1, 2.)

MALE. *Measurements*: Length, exclusive of antenna, 12.0–15.0 mm. Length of forewing 9.0–10.1 mm. Width of head 3.7–4.1 mm. *Color*: Integument non-metallic. Dark, black or black suffused with red, with clypeus yellow; scape and labrum cream-colored to yellow; flagellum largely yellowish in life but usually more reddish or brownish when dried; mandible yellow basally, dark amber medially, red apically; tegula amber, darker anteriorly; wing membrane weakly infuscated; veins and pterostigma brown and black; legs reddish brown to brown distad; tibial spurs testaceous; apical margin of terga amber; pygidial plate largely red. *Vestiture*: Face, vertex, posterior surface of head, entire mesosoma, and tergum 1 with long, dense whitish to ochraceous, light fulvous, or light ferruginous pubescence, this densest and darkest on pronotum and scutum; legs with pubescence largely ochraceous to fulvous, but white or whitish

on posterior surface of trochanter II, femur II, and tibiae II and III; hind femur and tibia sparsely pubescent; tergum I with long pubescence extended nearly to apical margin, without an apical band of appressed pale pubescence, with an apicolateral patch of short black pubescence; pubescence of other terga black or brownish black, with basal and/or apical pale bands as follows: basal white pubescent band moderately broad to broad laterally and narrow medially on tergum II, uniformly broad on tergum III, uniformly broad and fused with apical pale band laterally on tergum IV; apical pubescent band very narrow and whitish on terga II and III, moderately broad and white on tergum IV, moderately broad and white or dingy white laterally and strongly tinged with black or blackish brown medially on tergum V; terga III-VI with scattered, long, erect, black and ochraceous to fulvous hair. Sterna with pubescence short medially on II-V, white to fulvous; strong specialized setae of sternum V orange-brown to brown. *Sculpture*: Clypeus smooth, shiny, very finely and sparsely punctate medially, tessellate and more coarsely punctate laterally; face roughened, moderately coarsely and moderately closely punctate below, smoother and more finely and closely punctate above; thorax shiny, moderately coarsely and closely to very closely punctate, the punctures more widely separated on posterior center of scutum, anterior part of scutellum, and pleuron; anterior and lower parts of hypoepimeral area impunctate; sides of propodeum roughened, moderately coarsely and closely punctate above, smoother and more sparsely punctate below; basal part of propodeum indistinctly to distinctly tessellate, coarsely and moderately closely punctate; lower part of propodeal triangle smooth, impunctate; dorsal face of tergum I roughened basally, tessellate apically, moderately coarsely and closely to moderately closely punctate; inter-band zones of terga II-IV tessellate, finely and closely to moderately closely punctate.

FEMALE. Measurements: Length, exclusive of antenna, 13.0-15.0 mm. Length of forewing 9.0-10.3 mm. Width of head 4.0-4.5 mm. *Color*: Without light integumental areas; apical part of clypeus, underside of flagellum, labrum, and base or middle of mandible usually reddish or reddish brown; pygidial plate black. *Vestiture*: Legs with some pubescence whitish or white on coxae, trochanters, femora, and posterior surface of tibia II; scopal hair stramineous to ochraceous on outer surface of hind tibia and basitarsus, orange to ferruginous on inner surface of basitarsus; basal white pubescent band moderately broad laterally and narrow medially on tergum II, uniformly moderately broad to broad or narrowed medially on tergum III, uniformly moderately broad to broad on tergum IV; apical white pubescent band narrow on tergum II, narrow to moderately broad on tergum III, moderately broad on tergum IV; tergum V with some white hair apicolaterally; terga V, VI with apical hair ferruginous; terga III, IV with scattered, long, erect, black and ochraceous to fulvous hair.

Pubescence of sterna white and orange to orange-brown. *Sculpture*: Clypeus tessellate, often diagonally wrinkled, coarsely and moderately closely punctate; interband zones of terga II, III tessellate, finely and closely to moderately closely punctate.

TYPE MATERIAL. *Holotype*: male, 6.0 mi. SW. Bisbee, Cochise Co., Arizona, United States, 4800 ft. elevation, 26 July 1973, on *Menodora scabra*, 0615–0630 Mountain Standard Time (MST), T. J. Zavortink [CAS type No. 12254]. *Allotype*: female, same data as holotype except collected 0530–0545 MST [CAS]. *Paratypes* (21 males, 88 females): UNITED STATES. ARIZONA. *Cochise Co.*: Bisbee (6.0 mi. SW.), 4800 ft., 26 Aug. 1972, on *Menodora scabra*, 0545–0615 MST, 1♂, 3♀, 0615–0645 MST, 1♀; 26 July 1973, on *Menodora scabra*, 0530–0545 MST, 1♀, 0545–0600 MST, 1♂, 1♀, 0600–0615 MST, 1♀; 27 July 1973, on *Menodora scabra*, 0545–0600 MST, 1♀, 0600–0615 MST, 2♀, 0615–0630 MST, 2♀, 0700–0715 MST, 1♀, 0715–0730 MST, 1♂; 28 July 1973, on *Menodora scabra*, 0530–0545 MST, 1♀, 0600–0615 MST, 1♀, 0615–0630 MST, 1♂, 1♀, 0630–0645 MST, 1♀; 29 July 1973, on *Menodora scabra*, 0600–0615 MST, 1♀, 0615–0630 MST, 2♀, 0630–0645 MST, 2♀, on *Polygala racemosa*, 0545–0600 MST, 1♀; 30 July 1973, on *Menodora scabra*, 0545–0600 MST, 1♀, 0600–0615 MST, 1♂, 1♀; 16 Aug. 1974, on *Menodora scabra*, 0515–0530 MST, 1♀, 0530–0545 MST, 1♀, 0545–0600 MST, 2♀, 0600–0615 MST, 4♀, 0615–0630 MST, 4♀, 0630–0645 MST, 2♀, 0645–0700 MST, 1♀, 0700–0715 MST, 1♀, 0715–0730 MST, 2♀; 26 Aug. 1974, on *Menodora scabra*, 0515–0530 MST, 3♀, 0530–0545 MST, 6♀, 0545–0600 MST, 1♂, 2♀, 0600–0615 MST, 2♂, 0615–0630 MST, 1♂, 0630–0645 MST, 1♀, 0645–0700 MST, 1♀, 0700–0715 MST, 1♀, on *Ipomoea hirsutula*, 0700–0715 MST, 1♀, T. J. Zavortink [CAS]. Douglas (1.0 mi. E.), 14 July 1962, on *Conyza* species, 1♂, M. A. Cazier [ASU]; 26 July 1962, on *Mentzelia pumila*, 1800–1900 hours, 1♂, M. A. Cazier [UCB]. Douglas (4.1 mi. E.), 4400 ft., 27 Aug. 1974, on *Menodora scabra*, 0530–0545 MST, 2♂, 8♀, 0545–0600 MST, 6♀, 0600–0615 MST, 3♀, 0615–0630 MST, 1♂, 3♀, 0630–0645 MST, 1♂, 1♀, on *Desmanthus cooleyi*, 0545–0600 MST, 1♀, on *Salvia reflexa*, 0700–0715 MST, 1♂, T. J. Zavortink [CAS]. Portal (1.0 mi. S.), 3 Aug. 1969, on *Hoffmannseggia densiflora*, 0550–0559 MST, 3♀ [UCB], 1♀ [UCR], flying around *Solanum elaeagnifolium*, 0530–0544 MST, 1♀ [UCB], E. G. Linsley. Portal (2.0 mi. NW.), 5100 ft., 21 Aug. 1973, on *Menodora scabra*, 0600–0615 MST, 1♀, 0615–0630 MST, 1♀; 31 Aug. 1974, on *Menodora scabra*, 0515–0530 MST, 1♂, 0545–0600 MST, 1♂, 0600–0615 MST, 1♂, 0630–0645 MST, 1♀, T. J. Zavortink [CAS]. NEW MEXICO. *Eddy Co.*: Whites City, 8 July 1954, 1♂, M. A. Cazier and W. J. Gertsch [AMNH]. MEXICO. DURANGO. La Zarca (26 mi. S.), 16 July 1964, on *Cevallia sinuata*, 1♂, J. A. Chemsak [UCB].

ETYMOLOGY. This species is dedicated to E. Gorton Linsley in recognition of his contributions to knowledge of the systematics and biology of bees.

DISCUSSION

The monotypic genus *Simanthedon* may be distinguished from all other North American genera of Eucerini as follows: The male by (1) the strongly protuberant, 'pug-nosed' clypeus; (2) the long, slender, lightly pigmented antenna, with flagellar segment I long and segment 11 long, curved, and tapered to a blunt point (the antenna is similar to that of *Martinapis luteicornis*, but longer); (3) the combination of the slender femora I and III, the long and slender tibia III, the short tarsal segments 2-5 on I and III, and the sparsely pubescent and apically flattened or concave outer surface of basitarsus III; (4) the combination of the long spur on tibia I and the unequally shortened spurs on tibia III; (5) the paired patches of posteriorly directed, strong, long, curved, terete, barbed setae on sternum V; (6) the strongly sclerotized, strongly pigmented, and deeply laterally emarginate lateral plate and the long, narrow, reflexed, glabrate median plate of sternum VII; and (7) the pair of deep, oblique emarginations in the distal margin of the spatha. The female is distinguished by the combination of (1) the parallel inner margins of the eyes; (2) the moderately protuberant clypeus; (3) the short malar area; (4) the 5-segmented maxillary palpus; (5) the absence of spatuloplumose hairs on the mesosoma or metasoma; (6) the simple scopal hair; (7) the small, symmetrical claws on all legs; (8) the narrow, pointed, V- or Y- shaped pygidial plate; and (9) the absence of lateral parts on the gradulus of tergum VI.

Both sexes of *Simanthedon linsleyi* bear a strong but only superficial resemblance to *Martinapis luteicornis*. *Simanthedon linsleyi* may be distinguished from *M. luteicornis* by all the features of the male and features 1, 6, 7, and 8 of the female mentioned in the preceding paragraph, and by the following additional significant characters: (1) the absence of a median longitudinal, impunctate ridge or line on the clypeus of the female; (2) the simple, apically narrowed mandible of the female; (3) the oval tegula (the lateral margin of the tegula of *M. luteicornis* is stated to be convex in the anterior half by LaBerge (1957), but it is actually distinctly concave); (4) the short pterostigma (the pterostigma of *M. luteicornis* is unusual in being longer than the prestigma and extended far beyond the base of vein r); (5) the absence of a strong expansion at the base of the costal vein; (6) the absence of a gradular tooth on tergum VI of the male; (7) the more weakly biconvex gradulus of sternum II of the female; (8) the presence of a ventral process on the gonocoxite of the male; and (9) the simple, sparsely pubescent gonostylus of the male.

In LaBerge's (1957) key to the North and Central American genera of Eucerini, males of *Simanthedon linsleyi* run to *Martinapis* and females run to the couplet separating *Synhalonia* (as *Tetralonia*) and *Xenoglossodes*. The numerous characteristics that distinguish *Simanthedon* from the North American *Martinapis* (*M.*) *luteicornis* have been enumerated above; females of *Simanthedon* may be separated from those of *Synhalonia* by the five segmented

maxillary palpus and the narrow, pointed, V- or Y- shaped pygidial plate, and from those of *Xenoglossodes* by the moderately protuberant clypeus and the longer galea. In Moure and Michener's (1955) key to the South American genera of Eucerini, both sexes of *S. linsleyi* run to *Martinapis* if the reflexed median plate of sternum VII of the male and the simple apex of the mandible of the female are ignored. Unfortunately, specimens of the Argentine *Martinapis* (*Svastropsis*) *bipunctata* (Friese) have not been available for study and I cannot give a detailed list of the differences between *S. linsleyi* and that species. However, on the basis of the descriptions and illustrations in Moure and Michener (1955), males of *S. linsleyi* probably differ from those of *M. bipunctata* (female unknown to Moure and Michener) by all seven of the distinguishing features given in the first paragraph of this section.

The affinities of *Simanthedon* are unknown; it does not appear to be closely related to any North or South American genus of Eucerini. It does belong, however, in the "central group" of eucerine genera, as defined by Moure and Michener (1955). Sternum VII of the male of *S. linsleyi* is remarkably similar to that of the Chilean *Svastrides melanura* (Spinola), but beyond that, there is little resemblance between these species.

I have not observed any significant variation in the specimens of *S. linsleyi* available for study; even the males from New Mexico and Durango, Mexico appear to be indistinguishable from those from Arizona.

The majority of the known specimens of *Simanthedon linsleyi* have been collected from the flowers of *Menodora scabra*. The species is apparently not oligolectic on this plant however, as many females, including some collected on *Menodora*, bear a heavy load of pollen from other flowers in their scopae. The non-oleaceous pollen that has been collected in significant amounts appears to be of six different kinds, three of which I have been able to determine as *Agave palmeri* Engelm., *Datura meteloides* A. P. de Candolle, and *Polygala racemosa* Blake. This identification was done by comparing, in temporary glycerol mounts, pollen removed from the scopae of females with that removed from anthers of herbarium specimens of plants that were common at the type locality of *S. linsleyi* in 1973. Numerous other females of *S. linsleyi* collected on *Menodora* bear what I consider to be insignificant amounts of non-oleaceous pollen in their general vestiture; this pollen was undoubtedly obtained incidentally while these individuals were foraging for nectar only, and I have made no attempt to identify it. A complete list of flower records, along with an indication of the type of pollen borne in significant amounts by the females, for 21 males and 89 females is: *Cevallia sinuata* Lagasca y Segura, 1 ♂; *Conyza* species, 1 ♂; *Desmanthus cooleyi* (Eaton) Trelease, 1 ♀ (with *Menodora* pollen); *Hoffmannseggia densiflora* Benth. ex Gray, 4 ♀ (none with *Hoffmannseggia* pollen, 1 with *Datura* pollen, 1 with *Agave* and an unknown large spherical pollen, 2 with the unknown large spherical pollen); *Ipomoea hirsutula* J.

Jacquin, 1 ♀ (with *Ipomoea* and *Menodora* pollen); *Menodora scabra*, 17 ♂, 81 ♀ (45 ♀ with pure or nearly pure *Menodora* pollen, 1 ♀ with *Menodora* and *Datura* pollen, 1 ♀ with *Menodora*, *Datura*, and *Polygala* pollen, 1 ♀ with *Menodora* and *Agave* pollen, 1 ♀ with *Menodora* and *Ipomoea* pollen, 1 ♀ with *Menodora* and an unknown small spherical pollen, 5 ♀ with *Datura* pollen, 1 ♀ with an unknown moderately large oval pollen, 25 ♀ without pollen); *Mentzelia pumila* (Nuttall) Torrey & Gray, 1 ♂; *Salvia reflexa* Hornemann, 1 ♂; *Polygala racemosa* Blake, 1 ♀ (with *Datura* pollen); flying around *Solanum elaeagnifolium* Cavanilles, 1 ♀ (without *Solanum* pollen, but with *Agave* and an unknown large spherical pollen).

All but one of the 19 males and 89 females of *S. linsleyi* for which the time of collection has been recorded were taken in the early morning, between 0515 and 0730 MST. The single exception is a male taken in the evening, between 1800 and 1900 hours, on *Mentzelia pumila* near Douglas, Arizona. On the basis of my collections on *Menodora scabra*, the main flight period, during which 75 percent of the specimens were taken, of *S. linsleyi* extends from 0.50 hour before sunrise to 0.75 hour after sunrise, the females usually arriving at the flowers slightly earlier than males. However, since the flowers of *Menodora scabra* are closed at daybreak and do not start opening until 0.50–0.25 hour before sunrise, bees active at dawn cannot forage on this plant, and the daily flight period of *S. linsleyi* may start earlier than my data show. This hypothesis is supported by the fact that most of the females of *S. linsleyi* which bore non-oleaceous pollen and were collected on *Menodora scabra* were among the first bees to arrive at the flowers of this plant each morning.

The seasonal flight period of *S. linsleyi* is during the summer rainy season typical of the region it inhabits. The earliest and latest recorded dates are 8 July and 31 August.

S. linsleyi is presently known from three areas near the edge of the Chihuahuan Desert: southeastern Arizona and southeastern New Mexico, United States, and northeastern Durango, Mexico. All the specimens collected by me in Arizona have been taken in areas of calcareous soil, where *Menodora scabra* is particularly abundant. The single specimens from New Mexico and Durango are also from regions characterized by abundant limestone and, incidentally, within or near the known range of *Menodora scabra* (Steyermark, 1932). All of the specimens of *S. linsleyi* examined for this study (22 males, 89 females) are part of the type series, cited above.

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